

WHAT IS CLAIMED IS:

1 1. A method of diagnosing infection of a mammal by a *Cryptosporidium*
2 species, the method comprising:

3 contacting a stool sample obtained from the mammal with a capture
4 reagent which binds to *Cryptosporidium* protein disulfide isomerase, wherein the capture
5 reagent forms a complex with the protein disulfide isomerase if the protein disulfide
6 isomerase is present in the stool sample; and

7 detecting whether protein disulfide isomerase is bound to the capture
8 reagent, wherein the presence of protein disulfide isomerase is indicative of
9 *Cryptosporidium* infection of the mammal.

1 2. The method of claim 1, wherein the protein disulfide isomerase
2 comprises an amino acid sequence at least ten consecutive amino acids of which are
3 substantially identical to a subsequence of an amino acid sequence AWFCGTNEDFA
4 KYASNIRKVAADYR EKYAFVF (SEQ ID NO: 3).

1 3. The method of claim 2, wherein the protein disulfide isomerase has an
2 amino acid sequence that is substantially identical to the amino acid sequence of SEQ ID
3 NO: 2.

1 4. The method of claim 1, wherein the capture reagent comprises an
2 antibody which binds to protein disulfide isomerase.

1 5. The method of claim 4, wherein the antibody is a recombinant antibody.

1 6. The method of claim 5, wherein the antibody is a recombinant
2 polyclonal antibody.

1 7. The method of claim 6, wherein the recombinant polyclonal antibody is
2 SCPc.4.PC.

1 8. The method of claim 1, wherein the capture reagent is immobilized on a
2 solid support.

1 9. The method of claim 8, wherein the capture reagent is immobilized on
2 the solid support prior to contacting the capture reagent with the test sample.

1 10. The method of claim 1, wherein the detection of the protein disulfide
2 isomerase is performed by contacting the protein disulfide isomerase with a detection
3 reagent which binds to the protein disulfide isomerase.

1 11. The method of claim 10, wherein the detection reagent comprises an
2 antibody which binds to protein disulfide isomerase.

1 12. The method of claim 10, wherein the detection reagent comprises a
2 detectable label.

1 13. The method of claim 12, wherein the detectable label is selected from
2 the group consisting of a radioactive label, a fluorophore, a dye, an enzyme, and a
3 chemiluminescent label.

1 14. A kit for diagnosing infection of a mammal by an *Cryptosporidium*
2 species, the kit comprising:
3 a solid support upon which is immobilized a capture reagent which
4 binds to a protein disulfide isomerase of *Cryptosporidium parvum*; and
5 a detection reagent which binds to the protein disulfide isomerase.

1 15. The kit according to claim 14, wherein the kit further comprises a
2 positive control that comprises a protein disulfide isomerase.

1 16. The kit according to claim 15, wherein the protein disulfide isomerase
2 comprises an amino acid sequence of which at least ten consecutive amino acids are

3 substantially identical to an amino acid sequence AWFCGTNEDFAKYASNIRKVAADYR
4 EKYAFVF (SEQ ID NO: 3).

1 17. A monoclonal antibody that specifically binds to a protein disulfide
2 isomerase of *Cryptosporidium parvum*, wherein the monoclonal antibody is CP.2.

1 18. A recombinant polyclonal antibody preparation that specifically binds to
2 protein disulfide isomerase of *Cryptosporidium parvum*.

1 19. The recombinant polyclonal antibody preparation of claim 18, wherein
2 the protein disulfide isomerase comprises an amino acid sequence of which at least ten
3 consecutive amino acids are substantially identical to an amino acid sequence
4 AWFCGTNEDFAKYASNIRKVAADYREKYAFVF (SEQ ID NO: 3).

1 20. The recombinant polyclonal antibody preparation of claim 18, wherein
2 the antibody preparation is SCPc.4.PC.

1 21. An isolated protein disulfide isomerase polypeptide which comprises an
2 amino acid sequence of which at least ten consecutive amino acids are substantially identical
3 to a subsequence of an amino acid sequence AWFCGTNEDFAKYASNIRKVAADYR
4 EKYAFVF (SEQ ID NO: 3).

1 22. The protein disulfide isomerase polypeptide of claim 21, wherein the
2 polypeptide comprises an amino acid sequence that is substantially identical to the amino
3 acid sequence of SEQ ID NO: 2.

1 23. The protein disulfide isomerase polypeptide of claim 21, wherein the
2 polypeptide comprises an amino acid sequence that is substantially identical to an amino
3 acid sequence AWFCGTNEDFAKYASNIRKVAADYREKYAFVF (SEQ ID NO: 3).

1 24. The protein disulfide isomerase polypeptide of claim 23, wherein the
2 polypeptide comprises an amino acid sequence of SEQ ID NO: 3.

1 25. The protein disulfide isomerase polypeptide of claim 24, wherein the
2 polypeptide comprises the amino acid sequence of SEQ ID NO: 2.

1 26. An isolated nucleic acid that comprises a polynucleotide sequence that
2 encodes a polypeptide that comprises an amino acid sequence of which at least ten
3 consecutive amino acids are substantially identical to a subsequence of an amino acid
4 sequence AWFCGTNEDFAKYASNIRKVAADYREKYAFVF (SEQ ID NO: 3).

1 27. The nucleic acid of claim 26, wherein the nucleic acid comprises a
2 translation initiation codon that is in frame with codons that encode the amino acid sequence
3 set forth in SEQ ID NO: 3.

1 28. The nucleic acid of claim 27, wherein the nucleic acid comprises a
2 polynucleotide sequence of SEQ ID NO: 1.

1 29. The nucleic acid of claim 26, wherein the nucleic acid is operably
2 linked to a promoter.

1 30. The nucleic acid of claim 29, wherein the nucleic acid comprises an
2 expression cassette.

1 31. A recombinant cell that comprises an expression cassette of claim 30.